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A descriptive study of nonverbal communication between and within the professions of nursing and medicine

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A DESCRIPTIVE STUDY OF NONVERBAL COMMUNICATION BETWEEN AND WITHIN THE PROFESSIONS OF NURSING AND MEDICINE

A Thesis

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by

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THESIS ACCEPTANCE

Accepted for the faculty of the Graduate College of the University of Nebraska at Omaha, in partial fulfillment of the requirements for the degree Master of Arts.

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Thanks to my committee: Dr. John K. Brilhart, Chairman, Dr. Clemm Kessler from the Psychology Department, Dr. Dennis Fus from the Speech Department, and Dr. Robert Heaney, Vice President for Health Sciences at Creighton University.

A special thanks to Mark and Peg Fangman, alias Mom and Dad, who kept telling me I could do it.

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Due to the feminist movement, male-female communication has become a topic of increased interest, especially in the area of nonverbal communication. Julius Fast (1970) made "body language" a household phrase, for better or for worse. But the study of nonverbal behavior has only recently become a serious subject of research. As Randall Harrison (1971) put it, "We have important problems to solve. In short, I see us on the threshold of an exciting era of research in nonverbal communication (p. 2)."

The purpose of this study was to discover if there are differences in nonverbal behavior which characterize the interactions of nurses and physicians. It is the writer's opinion as a practicing, experienced nurse that inter-professional communication is of a more negative quality than intra-professional communication. If this is the case, then the effectiveness of the physician-nurse health team is perhaps less than it could be with improved communication. In the long run, it is the patient who would benefit from improved communication between physicians and nurses by receiving improved care. Thus, improving communication would help achieve the ultimate purpose of the medical profession.

Survey of Literature

Modes of Nonverbal Communication

Mehrabian (1971) noted in no uncertain terms that in our speech-oriented culture the profound and overlooked contribution of nonverbal behavior is just now beginning to be known.

> This contribution of our actions rather than our speech is especially important, since it is inseparable from the feelings that we knowingly or inadvertently project in our everyday social interaction and determines the effectiveness and well-being of our intimate, social, and working relationships (p. iii).

In general, very few studies have been done in the area of nonverbal behavior in nursing; the majority of nonverbal literature comes from outside of medical situations. Of the many aspects and components of nonverbal behaviors which may be communicated, the five types are surveyed here as subject to practical observation in an actual medical setting and as likely to reveal attitudinal components of intra- and inter-professional communication of physicians and nurses. These are touch, eye contact, body orientation, forward lean, and distance. The concept of immediacy is applicable to these five types of nonverbal behavior.

> Immediacy is defined in a somewhat general form as the extent to which communication behaviors enhance closeness to and nonverbal interaction with another. . . . greater immediacy is due to increasing degrees of physical proximity and/or increasing perceptual availability of the communicator to the addressee. (Mehrabian, 1969a, p. 203)

Although there are no experimental data available for touching in relation to attitude, the preceding concept of immediacy plus informal observations led researchers to include touching as an important variable of immediacy.

Touch and attitudes. Some information has been written about nurses touching patients and the effect it has on increasing verbal output of the patient and improved patient attitudes toward nurses (Agulera, 1967). But as far as nurse-physician contact goes, the general attitude is "hands off" unless you want to be considered as making

sexual advances. Since touching is usually associated in our culture with sexual connotations when it is between persons of the opposite sex (Knapp, 1972), it is easy to see why this negative attitude toward touching has developed in the hospital. It is almost as if nurses and physicians need to learn all over how meaningful touch can be. As an instance of such re-learning, Jane Howard (1970) reported her experiences with body awareness and touch and how these served as a breakthrough to psychological barriers built up in childhood.

Probably the most thorough account of the topic of touching was given by Ashley Montagu (1971) who wrote about the importance of tactile experience in one's development. He described the "tactile experience" being as necessary to life as breathing or eating. But as Knapp (1972) pointed out, children grow older

> learning "not to touch" a multitude of animate and inanimate objects; they are told not to touch their own body and later not to touch the body of their dating partner; care is taken so children do not see their parents "touch" one another intimately (p. 108).

Knapp went on to comment that touch is a crucial aspect of most human relationships.

Eye contact and attitudes. Eisenberg and Smith (1971) cited three identifiable and objective reasons for eye contact: (a) much nonverbal information about others is obtained, (b) looking at another person indicates that the channels of communication are open, and (c) being looked at can often alter behavior. Argyle and Dean (1965) summarized their findings by stating that when two people like one another they establish eye contact more often and for longer duration than when there is tension in the relationship.

In research on visual behavior, differences between the sexes seem to be the rule rather than the exception (Ellsworth & Ludwig, 1972). In the most common experimental situations, where the subject interacts with a steadily-gazing partner, women have been found to engage in more overall eye contact, more eye contact while speaking, more eye contact while listening, and more eye contact during silences (Ellsworth & Ludwig, 1972). Argyle and Williams (1969) found that females feel more observed than males, and people who feel observed are expected to have the perceptual goal of watching for visual feedback in order to adjust their social performances. If females do feel more observed than males, it follows that they may rely more on visual feedback, hence, establish more eye contact. Without such feedback they may feel unable to adjust their social performance in response to their audiences (Ellsworth & Ludwig).

In sum, findings which relate degrees of eye contact to attitude in nonthreatening interpersonal situations suggest that males show greater variability in their eye contact with their addressees than do females, and that they more consistently exhibit greater degrees of eye contact with liked than disliked addressees. Attitudes were determined by experimentor questioning (Mehrabian, 1969b). Scorings of eye contact by different raters had lower correlation between attitudes and eye contact ($r = .55$) than scoring on any other nonverbal behaviors studied by Mehrabian (telephone conversation, May 24, 1973).

Body orientation and attitudes. "The tendency to position oneself closer to others and to reveal more of oneself is closely related to a greater tolerance of and preference for immediacy (Mehrabian, 1971,

p. 9)." Similar statements are common in the nonverbal literature, and much research seems to be going on about body orientation as a factor in promoting conversation among strangers (Knapp, 1971). One study revealed that many people in the North American culture will not spontaneously assume a close position to a person of higher status; rather, they sit far away and face him directly (Mehrabian, 1971).

Mehrabian (1969b) summarized the history of the interest in posture and position. In the context where overt expressions of attitude were not obtainable, the significance of nonverbal cues in attitude communication was initially evidenced by psychoanalysts. Posture itself was used as source of information about patients' characteristics, feelings, and attitudes toward others and themselves. Deutsch (1947, 1952) noted that the posture of a client relates to his motivations, attitudes and intentions, which may or may not be verbalized.

Body orientation (i.e., the degree to which a communicator's shoulders and legs are turned in the direction of, rather than away from, his addressee) can serve as an indicator of communicator attitude. Mehrabian (1969b) found a correlation of .90 between attitudes and body orientation regarding the other person in an interaction and this measure. The evidence which is presently available suggests that males use a less direct body orientation when the addressee is liked very much and that females use very indirect body orientation with intensely disliked addressees. Attitudes were expressed to the experimentors by a questionnaire after the nonverbal observations were made (Mehrabian, 1969b).

Forward lean and attitudes. Forward lean is closely related to body orientation. Mehrabian (1969a) described "forward lean" as the number of degrees that a plane defined by a line from the communicator's shoulders to his hips is away from the vertical plane. As with orientation, observation of body lean is related to the theory that the more positive the attitude, the closer the communicator wishes to be to the addressee; hence, the more lean, the more positive the attitude toward others. Mehrabian (1969b) found a correlation of .87 between ratings by different observers of forward lean and attitudes.

Mehrabian (1968) showed that a positive increase in attitude regarding the other person in an interaction may be inferred from the posture of males or females when they are relaxed and leaning backward or tense and learning forward; also, variations in forward-back lean of female subjects have stronger effects on judged attitude than those of male subjects, although in both instances a forward lean communicates a more positive attitude than a backward lean. These attitudes were determined by investigator questionnaire.

Distance and attitudes. Mehrabian (1969b) found a correlation of .87 between ratings by observers in noting distance and attitudes. Hall classified informal space into four subcategories: intimate, casual-personal, social-consultative, and public. According to Hall, intimate distances range from actual physical contact to about eighteen inches; casual-personal extends from one and a half feet to four feet; social-consultative ranges from four to twelve feet; public distance covers the area from twelve feet to the limits of visibility or hearing (Knapp, 1972). Here the immediacy principle is at work: people are

drawn toward persons and things they like, evaluate highly, and prefer; and they avoid or move away from things they dislike, evaluate negatively, or do not prefer (Mehrabian, 1971).

The findings from a large number of studies support one another and indicate that communicator-addressee distance is positively correlated with the degree of negative attitude communicated to and inferred by the addressee through interview techniques (Mehrabian, 1969b). In addition, studies carried out by sociologists and anthropologists indicate that distances which are too close (inappropriate) for a given interpersonal situation can elicit negative attitudes when the communicator-addressee relationship is not an intimate personal one (Mehrabian, 1969b).

It was evident from the survey of literature that not much has been done in the area of nonverbal communication in the hospital setting, even though human interaction is very important in dealing with life. Christman (1965) discussed some of the major differences between physicians and nurses which may greatly affect communication by affecting attitudes which are related to status differences: (a) education, (b) language, (c) career patterns, (d) socio-economic classes, (e) sex, (f) power clashes, and (g) relationship to patients.

1. Educational differences: physicians and nurses have vast educational differences. The majority of practicing nurses graduated from three-year diploma schools of nursing (although the present trend is toward four-year baccalaureate degrees). By the time most physicans are practicing, they have from nine to thirteen years

of higher education. Status differences which create gaps in communication evolve easily along with the obvious intellectual development differences.

2. Language differences: the many technical languages of the various subgroups in the hospital, with the accompanying selective perceptions, are a constant hazard to the communication process. The physician may have no doubt about the clarity of his order, but the nurse may be hesitant to ask for clarification because of the feeling of being stigmatized.

3. Career pattern differences: physicians and nurses organize their professional lives in an entirely different manner. Physicians are usually self-employed and self-directing; most nurses are employees who are often subordinate to physicians. Physicians and nurses have many conflicting demands on their time; however, physicians have the opportunity for much more self-direction. If physicians assume that nurses have this same privilege, it could lead to considerable misunderstanding.

4. Socio-economic-class differences: the pronounced differences in the economic rewards of physicians and nurses produces a different style of life for the members of the two professions. The average nurse makes about $8,000 (N.N.A., 1973) per year while a physician's income far exceeds this amount (salaries of radiologists

and anesthesiologists have been quoted in an article in the Washington Post by Ronald Kessler as ranging from $105,000 to $200,000). Physicians traditionally come from families with professional and business backgrounds; nurses, on the other hand, most often come from working-class and lower-middle-class families. When the causes for the differences arising out of social-class disparities are not assessed in an objective manner, and when they carry over covertly into professional interaction, an additional obstruction is raised to free and open communication.

5. Sex differences: since most physicians are men and most nurses are women, the societal norms for male-female relationships are undoubtedly in effect. Male dominance and assumed male superiority are part of our cultural heritage. For nurses to be treated as so-called handmaidens when on the job can result in a concealed resentment which creates subtle barriers to full communication.

6. Power differences: a physician is a power unto himself in his own office. However, when he enters the hospital he is expected to work within the framework of the hospital which often causes clashes with the nursing staff, a group which is directly controlled by the hospital administration. When several clashes occur in the course of one day, the demands of each physician cannot

equally be met and a power squeeze is on. Nurses are apt to use coping tactics which can easily inhibit communication, such as performing duties less efficiently or neglecting what the nurses consider less important demands.

7. Differences in relationships to the patient: a physician develops a very specific and responsible relationship with his patients; nurses are often forced, through shortage of nurses and demands of hospital bureaucracy, to bypass some of the intimate relationships with their patients and assume managerial duties. In doing this, they do much to disrupt communication with their clinical colleagues by not knowing details about the patient which would clarify why procedures are being done.

More profound study of the inter- and intra-personal communication among physicians and nurses may uncover knowledge to be used in the development of hypotheses for further research. Also, as an important result of this type of study, the knowledge could well be used in teaching communication skills to nursing students, medical students, dental students, hospital staff, and other medical personnel, all of whom seem to this and many writers to be much in need of development in this area.

Attitudes and Communication

An attitude can be described as the degree of positive or negative affect associated with some psychological subject. By "psychological subject" is meant any symbol, phrase, slogan, person,

institution, ideal or idea toward which people can differ with respect to positive or negative affect (Edwards, 1957). According to Mehrabian (1969b), attitude is broadly defined as the degree of liking, positive evaluation, and/or preference of any one person for another. Such an attitude is often directly expressed in the manner in which people communicate.

Concerning the importance of attitudes, Deese (1967) wrote:

> Attitudes and the kind of relations they produce among people are responsible for many of the characteristics of groups and social institutions, and they exemplify the most basic pattern of relations among people (p. 491).

Attitudes are revealed by the way we act toward people, groups, and social institutions. They are not, however, our actions themselves. They are conditions within ourselves which we communicate in certain ways. However, in many cases behavior is designed to conceal feelings; there is no one-to-one correspondence between overt behavior and attitudes. But for the most part, attitudes are the main contributor to the manner in which communication occurs. Attitudes expressed in nonverbal behavior can either support or contradict attitudes expressed verbally.

Aiken (1969) gave a brief summary of attitude scales and their importance as a more objective method of assessing the direction (positive or negative) and strength of an individual's attitudes. An attitude scale consists of a series of statements expressing positive and negative feelings toward some institution, group of people, or concept. A person's score on an attitude scale is determined by the items with which he agrees or disagrees and the strength of these

opinions, the exact scoring method depending on the type of scale. The Likert method of summated ratings is one in which the person's total score on the initial set of attitude statements is simply the sum of the weights of the alternatives checked by him. The Likert scale is one of the most commonly used scales and it is fairly easy to develop and administer. For these reasons, it was selected as the scale of choice for this particular study.

Problem Statement

The survey of literature indicated that nonverbal behavior is a function of such things as status, sex, and types of relationships. Since much of communication is nonverbal, and if communication is to be as free of such detractors as defensiveness, it follows that physicians and nurses have a great need to be aware of how nonverbal behaviors affect their understanding of each other and may evoke defensiveness in communicating. For physicians and nurses to work as efficiently as possible in a patient-care team, it seems axiomatic to say they should communicate with as little distraction and as much clarity as possible. If attitudes held and/or perceived block reception by physicians of information from nurses, or of nurses from physicians, orders of medications and treatments could easily be confused and distorted. Certainly, it is the patient, the ultimate reason for the existence of the medical profession, who benefits or suffers from the quality of communication in the hospital situation. Therefore, this study is highly relevant to the quality of medical care.

Hypotheses

H.1. The distribution of positive and negative behaviors in four types of nonverbal communication by the initiator of interaction is significantly different in four status dyadic relationships: nurse-to-physician, nurse-to-nurse, physician-to-physician, and physician-to-nurse.

H.2. When a nurse initiates interaction with a physician, the nurse's nonverbal behavior is significantly more negative and less positive than when the nurse initiates interaction with another nurse.

H.3. When a nurse initiates interaction with a nurse, the nurse's nonverbal behavior is significantly less negative and more positive than when the nurse initiates interaction with a physician.

H.4. When a physician initiates interaction with a physician, the physician's nonverbal behavior is significantly less negative and more positive than when the physician initiates interaction with a nurse.

H.5. When a physician initiates interaction with a nurse, the physician's nonverbal behavior is significantly more negative and less positive than when the physician initiates interaction with another physician.

Definition of Terms

1. Nurse: a female registered nurse working in a hospital on a medical and/or surgical floor. Only female nurses

were used since most nurses are women and the norms for male-female relationships in effect would thus be held constant.

2. Physician: a male doctor of medicine, practicing either in the field of medicine or surgery in a hospital. Only male physicians were used since most physicians are men and the norms for male-female relationships in effect would thus be held constant.
3. Interaction: a face-to-face contact entailing physical proximity so that some observable response of one to the other was possible.
4. Pattern: a combination of behaviors in the five nonverbal categories.
5. Initiates: makes the first oral signal to the other; speaks first to begin the interaction.
6. Immediacy: the extent to which communication behaviors enhance closeness to and nonverbal interaction with another; greater immediacy is due to increasing degrees of physical proximity and/or increasing perceptual availability of the communicator to the addressee.
7. Communication: selective signaling, reception and response involving two people.

Method

Subjects. The subjects for observation were the first 10 nurses who appeared during observation and who interacted nonverbally both with 10 physicians and 10 other nurses; and the first 10 physicians

who appeared during observation who interacted nonverbally both with 10 nurses and 10 other physicians. Only those interactions which had a medical content were observed; purely social interactions were omitted. Thus the total sample included 10 initiating physicians and 10 initiating nurses, each of whom was observed initiating interaction with one physician and one nurse for a total of 40 interactions.

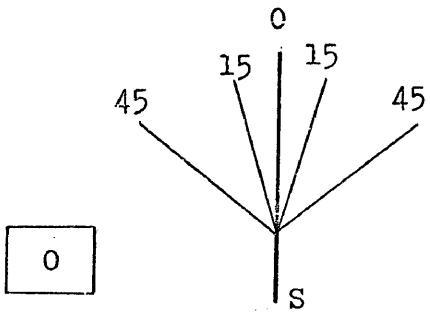
Behavior rating format. Mehrabian (1969a) found that one set of nonverbal behaviors--touching, distance, forward lean, eye contact, and body orientation--relate primarily to the attitude of a communicator toward his addressee. The nonverbal indicators and methods of observation used in the present study were adapted from Mehrabian. At three-second intervals, distance, eye contact, forward lean, and body orientation were observed between interacting pairs. The initial one-minute of initiator nonverbal cues was scored from each interaction observed for a total of 20 coded observations per interaction. From previous observations it was noted that most physician-nurse interactions do not last much longer than one minute; however, an observation lasting less than one minute would not yield sufficient data. For these two reasons, the one-minute time span was chosen. Also, from previous observations by this writer it was noted that touch occurred infrequently among nurses and physicians. For this reason it was felt that touch could be observed at any time throughout the interactions without being noted at three-second intervals.

1. Touch: the actual physical contact. The number of times the physician/nurse initiated intentional touch as a communication gesture (shoulder, hand, feet, etc.) was

scored. Touch occurring accidentally during the course of the performance of duties (procedures) was not counted.

2. Distance: the approximate number of feet and/or inches separating the speakers. This was the minimum distance between any point of the body of the subject and the other medical person. Scores were made at these levels for distance:
   a. 0-1½ feet (positive)
   b. 1½-4 feet (neutral)
   c. 4-12 feet (negative)
3. Eye contact: the number of times the subject who initiated the interaction was observed staring, glancing or avoiding eye contact, regardless of the response. A score for each observation was made in one of three categories:
   a. staring (positive)
   b. glancing (neutral)
   c. avoiding (negative)
4. Forward lean: the angle at which the body of the communicator leaned away from or toward the addressee was observed. The neutral point was 90° to the frontal plane of the addressee.
   a. 15-45 degrees toward the addressee (positive)
   b. 15 degrees toward to 15 degrees away from addressee (neutral)

c. 15-45 degrees away from the addressee (negative)



5. Body orientation: the number of degrees a plane perpendicular to the plane of the communicator's shoulders/head is turned away from the median plane of the addressee. Head orientation was added to body orientation because, as Mehrabian said

> Subjects infer a more positive experimenter attitude towards another person corresponding to the more immediate head orientation conditions, when the immediacy of the experimenter's body orientation towards the other person is either high or low (1967), p. 330).

a. 0-60 degrees (positive)

b. 60-120 degrees, or head and body in different directions (neutral)

c. 120-180 degrees (negative)

Sample Observation Form:

Names	Touch	Distance			Eye contact			Forward lean			Body orientation		
		o-1½	1½-4	4-12	s	g	a	p	neu	neg	0-60	60-120	120+
1.													
2.													
3.													
etc.													

Rater reliability. The reliability of the rater was determined by having her practice with 10 videotaped interactions (which consisted of male-female interactions in the hospital setting) using the preceding check sheet until scoring at three-second intervals became consistent. She then compared her observations with those made by another observer who had scored the same interactions independently. The other observer first studied the category system reported above and practiced applying it for approximately an hour with this writer before scoring for the inter-observer reliability check. The percentage of concurrence between the two raters on the five types of nonverbal cues were: 98% for distance, 72% for eye contact, 82% for forward lean, and 96% for body orientation. The writer also scored the videotape interactions again following a one-week interval to determine test-retest reliability. The percentages of concurrence were as follows: 100% for distance, 86% for eye contact, 92% for forward lean, and 98% for body orientation. A 70% concurrence had been set in advance as the minimum acceptable for research data.

Attitude Questionnaire

A 21-statement attitude questionnaire was given to the 10 nurses and 10 physicians who were observed (see Appendix I). Statements for the questionnaire were developed from pertinent concepts in the survey of literature and verbal comments made by physicians and nurses to this writer in the course of her observations prior to collecting data. The suggestions given by Edwards for editing statements to be used in the construction of attitude scales were followed (1957, p. 13). Of the 21 statements, 11 were stated in a positive

form and 10 in a negative form. The 10 statements regarding attitudes toward nurses were statements 1, 3, 5, 7, 8, 10, 11, 14, 16, 17, and 20. The 11 statements regarding attitudes toward physicians were statements 2, 4, 6, 9, 12, 13, 15, 18, 19, and 21. The questionnaire was then tested and re-tested on a separate group of 12 nurses and 8 physicians with a .85 Spearman Rho resulting. An item analysis was considered, but since the reliability coefficient was so high, it was thought the questionnaire was already a useable tool. The questionnaire was included in this study mainly as a follow-up instrument to compare the written attitudes with the attitudes reflected in nonverbal behavior.

Procedure

The 40 observations took place at the nurses' station and in hallways on medical-surgical floors of Archbishop Bergan Mercy Hospital located in Omaha, Nebraska. Observations did not take place in patients' rooms because of the possible interference of a third party, the cramped space, and procedures which might have affected the nonverbal interactions. Then the questionnaire was administered to each of the 10 physicians and the 10 nurses on an individual basis.

Results

H.1. was confirmed. Tables I through V show the pattern of nonverbal communication by the initiator of interaction is significantly different in four status dyadic relationships of interactions: nurse-to-physician, nurse-to-nurse, physician-to-physician, and physician-to-nurse. The χ^2 test for multiple independent samples was used to

determine if there was a significant difference in this distribution of positive, neutral, and negative nonverbal behaviors in each of the four non-verbal categories (distance, lean, orientation, and eye contact).

Table I shows the chi-square value for frequency distributions of positive, neutral, and negative behaviors by initiators in distance, eye contact, lean, and orientation.

TABLE I

CHI-SQUARE VALUES FOR FREQUENCY DISTRIBUTIONS OF POSITIVE, NEUTRAL, AND NEGATIVE BEHAVIORS BY INITIATORS IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

Variable	χ^2	df	p
Distance	57.21	3	< .001 *
Lean	58.06	3	< .001 *
Orientation	61.86	3	< .001 *
Eye Contact	88.15	6	< .001 **

* p: .001 = 16.27

** p: .001 = 22.46

With distance, lean and orientation, the neutral and negative categories were combined because the expected frequencies in the negative cells were below the required n of five necessary for the χ^2 test. This changed the categories into "positive" and "not positive," The only exception was for eye contact in which there were enough expected frequencies in each cell to do a 3x4 χ^2 test. All others required a 2x4 χ^2 test.

Because touch occurred only once between physicians, eight times between nurses, and never inter-professionally, these data were not subjected to statistical analysis.

Table II shows the observed frequencies or positive and negative behavior for nurse-to-physicians and physicians-to-nurses in distance, eye contact, lean, and orientation.

Table II is the only instance in which positive and neutral were combined instead of negative and neutral. The trend here indicates an avoidance of eye contact between members of different professions.

TABLE II

OBSERVED FREQUENCIES FOR NURSE-TO-PHYSICIANS AND PHYSICIANS-TO-NURSES IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

	Distance		Orientation		Lean			Eye Contact	
	N-P	P-N	N-P	P-N	N-P	P-N		N-P	P-N
Positive	8	16	5	25	2	5	Pos. + Neu.	33	34
Neg. + Neu.	42	34	45	25	48	45	Neg.	17	16

Table III shows the chi-square values for frequency distributions of positive, neutral, and negative behaviors by nurses-to-physicians and physicians-to-nurses in distance, eye contact, lean and orientation.

TABLE III

CHI-SQUARE VALUES FOR FREQUENCY DISTRIBUTIONS OF POSITIVE, NEUTRAL AND NEGATIVE BEHAVIORS BY NURSES-TO-PHYSICIANS AND PHYSICIANS-TO-NURSES IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

Variable	χ^2	df	p
Distance	3.44	1	ns
Lean	.06	1	ns
Orientation	17.90	1	<.001*
Eye Contact	0	1	ns

* p: .001 = 10.83

Table IV shows the observed frequencies of nurses-to-nurses and physicians-to-physicians in distance, lean, and orientation.

TABLE IV

OBSERVED FREQUENCIES FOR NURSES-TO-NURSES AND PHYSICIANS-TO-PHYSICIANS IN DISTANCE, LEAN, AND ORIENTATION

	Distance		Orientation		Lean	
	N-N	P-P	N-N	P-P	N-N	P-P
Positive	39	38	49	43	32	23
Neu. + Neg.	11	12	3	9	18	27

Table V shows the chi-square values for frequency distributions of positive, neutral and negative behaviors by nurses-to-nurses and physicians-to-physicians in distance, eye contact, lean, and orientation.

TABLE V

CHI-SQUARE VALUES FOR FREQUENCY DISTRIBUTIONS OF POSITIVE, NEUTRAL AND NEGATIVE BEHAVIORS BY NURSES-TO-NURSES AND PHYSICIANS-TO-PHYSICIANS IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

Variable	χ^2	df	p
Distance	0	1	ns
Lean	2.59	1	ns
Orientation	1.00	1	ns
Eye Contact	.70	1	ns

Table I clearly indicates that there is a significant difference in each of the four categories (distance, lean, orientation, and eye contact) between nurse-to-physician, nurse-to-nurse, physician-to-physician, and physician-to-nurse. Tables I, II, III, and IV indicate where there are no significant differences between two sets of comparisons: (1) nurses-to-physicians and physicians-to-nurses, and (2) nurses-to-nurses and physicians-to-physicians. The only exception is orientation between nurses-to-physicians and physicians-to-nurses.

H.2. was also supported. Tables VI and VII show that when a nurse initiates interaction with a physician, the nurse's nonverbal behavior is significantly more negative and less positive than when the nurse initiates interaction with another nurse. The χ^2 test for two independent samples was used for these and the following hypotheses to determine exactly where the differences existed.

H.3. was also confirmed. Tables VI and VII show that when a nurse initiates interaction with a nurse, the nurse's nonverbal behavior is significantly less negative and more positive than when the nurse initiates interaction with a physician.

Table VI shows the observed frequencies for nurses-to-physicians and nurses-to-nurses in distance, eye contact, lean, and orientation. Table VII shows the chi-square values for frequency distributions of positive, neutral, and negative behaviors by nurses-to-physicians and nurses-to-nurses in distance, eye contact, lean, and orientation.

TABLE VI

OBSERVED FREQUENCIES FOR NURSES-TO-PHYSICIANS AND NURSES-TO-NURSES IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

	Distance		Orientation		Lean			Eye Contact	
	N-P	N-N	N-P	N-N	N-P	N-N		N-P	N-N
Positive	8	39	5	47	2	32	Pos.	0	35
Neg. + Neu.	42	11	45	3	48	18	Neu.	33	15
							Neg.	17	0

TABLE VII

CHI-SQUARE VALUES FOR FREQUENCY DISTRIBUTIONS OF POSITIVE, NEUTRAL, AND NEGATIVE BEHAVIORS BY NURSES-TO-PHYSICIANS AND NURSES-TO-NURSES IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

Variable	χ^2	df	p
Distance	36.11	1	<.001*
Lean	37.48	1	<.001*
Orientation	67.34	1	<.001*
Eye Contact	58.76	2	<.001**

* p: .001 = 10.83

** p: .001 = 13.82

H.4. was also confirmed. Tables VIII and IX show that when a physician initiates interaction with a physician, the physician's nonverbal behavior is significantly less negative and more positive than when the physician initiates interaction with a nurse.

H.5. was also supported. Tables VIII and IX show that when a physician initiates interaction with a nurse, the physician's nonverbal behavior is significantly more negative and less positive than when the physician initiates interaction with another physician.

Table VIII shows the observed frequencies for physicians-to-nurses and physicians-to-physicians in distance, eye contact, lean, and orientation.

TABLE VIII

OBSERVED FREQUENCIES FOR PHYSICIANS-TO-NURSES AND PHYSICIAN-TO-PHYSICIAN IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

	Distance		Orientation		Lean			Eye Contact	
	P-N	P-P	P-N	P-P	P-N	P-P		P-N	P-P
Positive	16	38	25	43	5	23	Pos.	5	30
Neg. + Neu.	34	12	25	7	45	27	Neu.	29	20
							Neg.	16	0

Table IX shows the chi-square values for frequency distributions of positive, neutral, and negative behaviors by physicians-to-nurses and physicians-to-physicians in distance, eye contact, lean, and orientation.

TABLE IX

CHI-SQUARE VALUES FOR FREQUENCY DISTRIBUTIONS OF POSITIVE, NEUTRAL, AND NEGATIVE BEHAVIORS BY PHYSICIAN-TO-NURSES AND PHYSICIANS-TO-PHYSICIANS IN DISTANCE, EYE CONTACT, LEAN, AND ORIENTATION

Variable	χ^2	df	p
Distance	17.75	1	<.001*
Lean	14.87	1	<.001*
Orientation	13.28	1	<.001*
Eye Contact	35.52	2	<.001**

* p: .001 = 10.83

** p: .001 = 13.82

As shown in Table X, the 11 statements answered by the 10 physicians and the 10 nurses regarding attitudes toward nurses were summed; the 10 statements answered by the 10 physicians and the 10 nurses regarding attitudes toward physicians were summed. The sums for the statements toward nurses were multiplied by 11 and divided by 10 in order to be able to compare the sums for nurses with the sums for physicians.

TABLE X

ATTITUDE SCORES OF WRITTEN ATTITUDES OF NURSES-TO-NURSES, NURSES-TO-PHYSICIANS, PHYSICIANS-TO-NURSES, AND PHYSICIANS-TO-PHYSICIANS

S	N-N	N-P	P-N	P-P
1.	40.95	41	36.40	39
2.	40.95	41	31.85	36
3.	31.85	40	32.76	42
4.	30.94	36	33.67	36
5.	37.31	39	37.31	39
6.	38.22	38	36.40	43
7.	36.40	36	38.22	35
8.	40.04	40	40.95	44
9.	37.31	35	37.31	43
10.	36.40	40	29.12	37

As shown in Table XI, the results of the attitude questionnaire were then tested with the Median test which gives information as to whether it is likely that two independent groups have been drawn from the same population; the probability of the observed frequency distributions around the median is found by using the χ^2 test.

TABLE XI

VALUES FOR MEDIAN TESTS OF WRITTEN ATTITUDES OF NURSES-TO-PHYSICIANS AND NURSES-TO-NURSES, PHYSICIANS-TO-NURSES AND PHYSICIANS-TO-PHYSICIANS

Dyadic Relationship	χ^2
1. Nurses to Physicians and Nurses to Nurses	4.0*
2. Physicians to Nurses and Physicians to Physicians	0.67

*-p: .05 = 3.84

Table XII shows the probabilities for the sign test of frequencies of nurses-to-nurses vs. nurses-to-physicians and physicians-to-physicians vs. physicians-to-nurses on positive to non-positive nonverbal behavior. The sign test was done to remove any doubt that individuals would vary greatly from the rest of the group. "The sign test is applicable to the case of two related samples when the experimenter wishes to establish that two conditions are different" (Siegel, 1956, p. 68).

TABLE XII

PROBABILITIES FOR SIGN TEST OF FREQUENCIES OF NURSES-TO-NURSES VS. NURSES-TO-PHYSICIANS AND PHYSICIANS-TO-PHYSICIANS VS. PHYSICIANS-TO-NURSES ON POSITIVE TO NON-POSITIVE NONVERBAL BEHAVIOR

	Overall	Distance	Lean	Eye	Orientation
*N to N vs. N to P	(n=10) .001	(n=7) .008	(n=10) .001	(n=10) .001	(n=10) .001
*P to P vs. P to N	(n=9) .002	(n=7) .008	(n=8) .004	(n=9) .002	(n=6) .016

*In all cases the deduction is the same: intra-professional nonverbal behavior is more positive than inter-professional nonverbal behavior.

Discussion and Conclusions

There are significant differences in nonverbal behavior which characterize the interactions of nurses and physicians. The results revealed that a significantly higher proportion of positive nonverbal behaviors and a significantly higher proportion of negative nonverbal behaviors occurred when nurses interacted with nurses and physicians interacted with physicians. The opposite occurred when the two professions interacted with each other. Then there was a significantly higher proportion of negative and a lower proportion of positive behavior. The only time there was an exception was when comparing orientation between nurses-to-physicians and physicians-to-nurses; there was a significant difference when one was not expected. A partial explanation of this could be the concept of confrontation; in our North American culture, fighters, debaters, gamblers, or any conflicting pair tend to face each other directly as they encounter one another. Omitting this concept may have been an oversight on the part of this writer in setting up the criteria for observing body orientation. However, in general, we find that inter-professional nonverbal communication is significantly less positive than intra-professional communication regardless of the profession of the observed initiator.

Touch was not a very useful index for this study because of its relative infrequency in the hospital setting among physicians and nurses. However, it is possible to infer a negative attitude from this infrequency, or physicians and nurses may just be missing opportunities for communicating. The other four categories (distance, lean,

orientation, and eye contact) were most useful as indexes for attitudes and showed a significant difference among nurses and physicians.

The questionnaire itself had not been item or factor analyzed and was included only as a possible check on observed behaviors. The results from the questionnaire were not as significant as the results from the nonverbal observations. There was a significant difference in comparing the attitudes of nurses to physicians and nurses to nurses; there was not a significant difference in comparing the attitudes of physicians to nurses and physicians to physicians. This was also supported by the findings of the sign test. The nurses, in general, showed a more negative attitude toward physicians. This could be explained partially by the fact that nurses may still feel themselves to be playing the role of handmaidens which results in a negative attitude toward physicians. On the other hand, the physicians have no reason to feel negative attitudes toward nurses since the physicians have little to resent in the roles they play.

The less significant or clear results from the attitude questionnaire could be attributed to the fact that the respondents wrote what they thought was expected of them on the questionnaire; but they were not aware of being observed for nonverbal behavior which resulted in more valid data. Or perhaps the questionnaire is much too gross a measure of attitude to detect differences in attitudes. However, previous statements by Mehrabian established nonverbal behavior as a valid indicator of attitude and this was supported somewhat by this present study.

Implications for further research. Because the knowledge gained from this type of research could be used in teaching communication skills to medical personnel, hypotheses for further research should be developed. It would help to consider other variables not considered in this study: how different would the results be if the physicians had been female and/or the nurses had been male? Is there a difference between behaviors of staff members in education-oriented hospitals, and service-oriented hospitals? Are there variations in such behaviors among the hospitals within a city or in different parts of the country? Do the attitudes vary within the hospital depending on the type and size of the unit and the resultant closeness of the medical and nursing staff? Do the graduates from a two-year nursing program differ from those from a three-year or a four-year program in behaviors and implied attitudes? Would nursing students and medical students vary in their behavior from graduate nurses and physicians?

In addition, the attitude questionnaire could be developed further to reflect more accurately inter- and intra-professional attitudes. It seems to this writer that, at present, the nonverbal behavior is a more accurate tool for evaluating attitudes; however, with a much more refined questionnaire, it might be possible to elicit accurate expressions of attitude without the trouble and expense of direct observation.

Practical implications. The results from this study could easily be applied to teaching communication skills to medical personnel. Hopefully it could be used to increase the level of aware-

ness of nonverbal behavior among physicians and nurses and open up levels of confrontation and honest expressions of attitude, thus contributing to increased acceptance between the two professions. This study is not intended to imply that nurses should be superior to physicians or vice versa, but that communication be more open, honest and aware.

APPENDIX I

In the section below you will see a series of statements. Please indicate your agreement or disagreement. Use the scale below each statement. For example:

Nurses need physicians' support in patient care.

strongly agree	agree	undecided	disagree	strongly disagree

If you think nurses need physicians' support, put an (X) above "agree;" if you think nurses do not need physicians' support, put a mark over "strongly disagree." If you think it doesn't matter, put a mark over "undecided" and so on.

There are no right or wrong answers. We are interested in your opinion about the statements which follow. Answer as if the statements included you (when applicable). Please answer all the questions.

1. Leadership skills can be acquired by most nurses regardless of their particular inborn traits and abilities.

2. Leadership skills can be acquired by most physicians regardless of their particular inborn traits and abilities.

3. The average nurse prefers to be directed, wishes to avoid responsibility and has relatively little ambition.

4. The average physician prefers to be directed, wishes to avoid responsibility and has relatively little amibtion.

5. It is easier for members of the same profession to work together than with members of another profession.

6. In a hospital work situation, nurses' communication with physicians is fleeting and superficial.

7. In a hospital work situation, nurses' communication with nurses is fleeting and superficial.

8. A good nurse is more helpful to the patients in the hospital than anyone else.
_____:_____:_____:_____:_____

9. A good physician is more helpful to the patients in the hospital than anyone else.
_____:_____:_____:_____:_____

10. Many nurses are dependent on and deferent to physicians.
_____:_____:_____:_____:_____

11. Many nurses are dependent on and deferent to nurses.
_____:_____:_____:_____:_____

12. Many physicians are dependent on and deferent to physicians.
_____:_____:_____:_____:_____

13. Many physicians are dependent on and deferent to nurses.
_____:_____:_____:_____:_____

14. Nurses should be told only that information which is necessary for them to do their immediate tasks in caring for patients.
_____:_____:_____:_____:_____

15. Physicians should be told only that information which is necessary for them to do their immediate tasks in caring for patients.
_____:_____:_____:_____:_____

16. You would expect a nurse to question a physician's order that is obviously inapplicable.
_____:_____:_____:_____:_____

17. You would expect a nurse to question a nurse's order that is obviously inapplicable.
_____:_____:_____:_____:_____

18. You would expect a physician to question a physician's order that is obviously inapplicable.
_____:_____:_____:_____:_____

19. You would expect a physician to question a nurse's order that was obviously inapplicable.
_____:_____:_____:_____:_____

20. Nurses have much opportunity for self-direction.
_____:_____:_____:_____:_____

21. Physicians have much opportunity for self-direction.
_____:_____:_____:_____:_____

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